

REMARKS

This application has been carefully reviewed in light of the Office Action dated March 14, 2005. Claims 1 to 6, 8 to 23, and 39 to 44 are in the application, of which Claims 1, 4, 8, 11, 14, 17, and 21 to 23 are independent. Reconsideration and further examination are respectfully requested.

The Office Action objected to FIG. 6 and FIG. 9. Applicant files concurrently herewith a Letter Transmitting Corrected Drawing, which includes a Replacement Sheet for FIG. 6. Applicant believes that the changes to FIG. 6 address all of the concerns in the Office Action. In addition, the specification has been amended to address the Office Action's objection to FIG. 9. Accordingly, reconsideration and withdrawal of the objections are respectfully requested.

The Office Action objects to the title of the invention, and requires a new title. Applicant disagrees and elects not to change the title of the invention at this time.

Claims 4 to 6, 11 to 13, 16 to 19, and 21 to 38 were rejected under 35 U.S.C. § 112, second paragraph. Claims 24 to 38 have been cancelled without disclaimer of subject matter or conceding the correctness of the rejections. Claims 4 to 6, 11 to 13, 16 to 19, and 21 to 23 have been amended to address the concerns of the Office Action. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

Claims 14 to 19, 23, and 33 to 36 were rejected under 35 U.S.C. § 101. As mentioned above, Claims 33 to 36 have been cancelled. Claims 14 to 19, and 23 have been amended to address the concerns of the Office Action. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

Claims 1 to 3, 8 to 10, 14 to 16, and 20 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6,650,431 (Roberts) and U.S. Patent No. 6,268,925 (Yamanaka). Reconsideration and withdrawal of the rejections are respectfully requested.

A device in an energy saving state can take a long time to warm up and become operable, thus delaying the completion of a job sent to the device. For a system with a single device, a job can be sent to the single device only; thus, the only way to reduce delay due to warm up time is to keep the device in a constant stand-by state or to start the warm up earlier. However, the present invention recognizes that warm up delay in cluster systems can be reduced using a different approach. Specifically, when the devices in a cluster system are in different states of energy saving function, the start up time of the cluster system can be reduced by distributing cluster jobs based on the energy saving functions of the devices in the cluster system.

The present invention concerns controlling a cluster operation of a plurality of devices by taking into account the states of the energy saving function of the devices in the cluster system.

With specific reference to Claim 1, one feature of the present invention is distributing a job to each device based on a sum of the number of devices in a stand-by state and the number of devices transferring to the stand-by state by a restoring portion reaching a required number. First, a determination is made of whether or not a required number of devices for the cluster operation are in the stand-by state. Based on the determination, devices in an energy saving state are restored by transferring the devices to a stand-by state. Jobs are distributed to the devices based on the sum of the number of

devices in the stand-by state and the number of devices transferring to the stand-by reaching the required number.

The applied art is not seen to disclose or suggest the features of Claim 1, and in particular, is not seen to disclose or suggest at least the feature of distributing a job based on a sum of the number of devices in the stand-by state and the number of devices transferring to the stand-by reaching a required number.

Roberts relates to a system for distributing an electronic document “based on information embedded in the electronic document.” (Abstract of Roberts, see also column 6, lines 51 to 53). Specifically, when control station 108 receives a request to print a document, the document is parsed and examined page by page. Control station 108 routes each page of the document based on information contained in the page. For example, if the page contains color information, control station 108 distributes the page to a color printer.

In contrast to the present invention, the system of Roberts makes no determination whether devices are in a stand-by state, much less distributes a job based on a sum of the number of devices in the stand-by state and the number of devices transferring to the stand-by reaching a required number.

Yamanaka is not seen to supply what is missing from Roberts. In particular, Yamanaka is directed to a single-printer system in which a wake-up command is sent to the printer “when a printer driver is called in preparation for a printing operation.” (column 2, lines 17 to 18 of Yamanaka). In other words, the destination (laser printer 40) is selected and the print job is distributed based on simple user selection, for example, when a dialog

box is used by the user to set the print mode. Thus, distribution of the print job of Yamanaka is not based on a determination whether devices are in a stand-by state, much less, on a sum of the number of devices in the stand-by state and the number of devices transferring to the stand-by state reaching a required number.

Accordingly, based on the foregoing amendments and remarks, Claim 1 is believed to be allowable. Claim 8 and Claim 14 are a method claim and computer program claim, respectively, having substantially the same features of Claim 1, and are believed allowable for at least the reasons above.

Claim 4 is directed to a control device that includes a distribution portion that distributes a job to each device in a stand-by state and each device in an energy saving state that is selected by a selecting portion. The selecting portion selects a number of devices from among the devices in an energy saving state, if the number of devices in the stand-by state is less than a required number of devices for the cluster operation.

The applied art is not seen to disclose or suggest the features of Claim 4, and in particular, is not seen to disclose or suggest at least the feature of distributing a job to each device in a stand-by state and each device in an energy saving state that is selected by a selecting portion.

As discussed above, Roberts makes no determination whether devices are in a stand-by state or an energy saving state, much less selecting a number of devices in a energy saving state. Thus, Roberts cannot disclose anything having to do with distributing a job to a selected device in an energy saving state.

Similarly, Yamanaka is not seen to disclose distributing a job to each device in a stand-by state and each device in an energy saving state that is selected by a selecting portion. As discussed above, Yamanaka is directed to a single-printer system, and the selection of laser printer 40 is accomplished by a user utilizing a software application. Thus, Yamanka does not disclose selecting a number of devices from among the devices in an energy saving state, if the number of devices in a stand-by state is less than a required number of devices for a cluster operation, much less distributing a job to such a selected device in an energy saving state.

Accordingly, based on the foregoing amendments and remarks, Claim 4 is believed to be allowable. Claim 11 and Claim 17 are a method claim and computer program claim, respectively, having substantially the same features of Claim 4, and are believed allowable for at least the reasons above.

Claim 21 is directed to a network device in which a cluster operation can be realized in cooperation of a plurality of network devices. The network device includes a determination portion that determines whether the network device is included a cluster system, when conditions for transferring to an energy saving state are met, and a state transfer portion that transfers the network device to the energy saving state in accordance with an instruction from an external device, irrespective of said conditions, if the determination portion determines that the network device is included the cluster system.

The applied art is not seen to disclose or suggest the features of Claim 21. Accordingly, Claim 21 is believed to be allowable over the cited references.

The other claims in the application are each dependent from the independent claims and are believed to be allowable over the applied references for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

No other matters being raised, it is believed that the entire application is fully in condition for allowance, and such action is courteously solicited.

Applicant's undersigned attorney may be reached in our Costa Mesa, California office by telephone at (714) 540-8700. All correspondence should continue to be directed to our address given below.

Respectfully submitted,



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